

Baumann et al.
Serial No. 10/755,632
Filed: 1/12/2004

Remarks

Favorable reconsideration of this application in view of the remarks to follow is respectfully requested. Since the present Response raises no new issues, and in any event, places the application in better condition for consideration on appeal, entry thereof is respectfully requested under the provisions of 37 C.F.R. §1.116.

Prior to discussing the prior art rejections, Applicant takes this opportunity to set forth the following brief remarks about their invention. Applicant has discovered that an aluminum alloy comprised of about 0.7-1.2% Si, greater than 2.0 to about 2.4% Fe, about 0.6-1.0% Mn, up to about 0.5% Mg, up to about 2.5% Zn, up to about 0.10% Ti, and up to about 0.05% In, with the remainder comprising Al and tolerable impurities, when cast into an aluminum alloy strip substantially free of coarse intermetallics is suitable for cold rolling into an aluminum alloy fin stock without cracking or breaking. Referring to Paragraph 0051 of Applicant's disclosure, Applicant discloses that the claimed composition is suitable for aluminum fin stock when cast in a manner as to produce an alloy strip substantially without coarse intermetallics, such as primary Fe-bearing intermetallics, and without heavy bands of eutectic segregation in the form of centerline segregation. One example of a casting method that may be used in conjunction with the claimed composition is described in paragraphs 0061 to 0069 of Applicant's disclosure. Prior aluminum alloy's having an Fe content within the range claimed by the Applicant's, such as the fin stock disclosed in U.S. Patent No. 6,620,265 to Kawahara et al., could not be cold rolled without substantial cracking and therefore could not be utilized for a fin stock alloy. Thus, Applicant respectfully submits that the application is in condition for immediate allowance.

Turning now to the Office Action, the Examiner rejected Claims 1-17 under 35 U.S.C. §103(a), as allegedly obvious over U.S. Patent No. 6,620,265 to Kawahara et al. ("Kawahara et

Baumann et al.
Serial No. 10/755,632
Filed: 1/12/2004

al.") in view of U.S. Patent No. 6,660,108 to Doko et al. (Doko et al.). Applicants respectfully traverse for the following reasons.

To establish a prima facie case of obviousness three criteria must be met. First there must be some suggestion or motivation, either in the references themselves or the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1543, 1457-58 (Fed. Cir. 1998). Second, there must be a reasonable expectation of success. *In re Merck & Co, Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Finally, the prior art reference (or references) combined must teach or suggest all of the claimed limitations. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must be both found in the prior art and not based on applicants disclosure. *In re Vaack*, 947 F.2d 488, 20 USPQ 2d 1438 (Fed. Cir. 1991).

Applicant submits that the prior art fails to render Applicant's invention obvious, since the applied prior art either alone or in combination fails to teach or suggest each and every limitation of Applicant's invention. To establish a prima facie case of obviousness of a claimed invention all the claimed limitations must be taught or suggested by the prior art". *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 44, 496 (CCPA 1970). Specifically, the applied prior art fails to teach or suggest a crack free finstock formed of an Al-Fe-Si-Mn alloy containing greater than 2.0 wt % Fe, as recited in amended Claims 1, 10 and 14.

Turning to Page 2 of the Final Rejection, the Examiner admits that the ranges of alloying elements in Applicant's claims are outside those taught in Kawahara et al. The Examiner then cites *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985), for the proposition that "a prima facie case of obviousness exists where the claimed ranges

Baumann et al.
Serial No. 10/755,632
Filed: 1/12/2004

and the prior art ranges do no overlap but are close enough that one skilled in the art would have expected them to have the same properties". Finally, the Examiner alleges that Doko et al. teach that Fe values above 2.0 wt% can be successfully employed into the alloys disclosed in Kawahara et al. and further states that it would be obvious for one having skill in the art to increase the Fe content in Kawahara et al. in view of Doko et al. Applicant respectfully disagrees and submits the following.

Kawahara et al. fail to render Applicant's invention obvious, since the applied reference fails to teach or suggest a crack free finstock formed of an Al-Fe-Si-Mn alloy containing greater than 2.0 wt % Fe, as recited in amended Claims 1, 10 and 14. It is noted that Kawahara et al. fails to provide a single reference to an alloy including greater than 2.0 wt% Fe that does not exhibit breakage in Fin Stock applications. Referring to Column 10, lines 16-18, of the Kawahara et al. reference, Kawahara et al. disclose that in order to provide an aluminum fin stock using the method disclosed therein, the Fe content must be defined to be more than 1.2 wt % by mass and 2.0 wt % by mass or less. Referring to Column 10, lines 16-25, Kawahara et al. disclose that the effect for preventing heat conductivity is not manifest when Fe is present in less than 1.2 wt % and that an Al-Fe series compound crystallizes at an early stage when the Fe content exceeds 2.0% by mass. Referring to Column 10, lines 24-27, Kawahara et al. further teach that the crystallize materials resulting from the increased Fe content results in breakage of the fin material during the cold-roll step and cutting of the fin in assembling the core. There is no teaching throughout the Kawahara et al. disclosure that an aluminum alloy including Applicant's claimed Fe content (greater than 2.0 wt %) would provide an aluminum finstock without resulting in breakage or cracking.

Baumann et al.
Serial No. 10/755,632
Filed: 1/12/2004

The only disclosure of an alloy composition meeting the limitation of Applicants' claimed Fe content in the Kawahara et al. reference was provided in illustrative Example M, in which an alloy was provided having a Fe content that resulted in breakage during cold rolling. Referring to Column 29, lines 55-62, Kawahara et al. further disclose that "in experiment No. 24, since the Fe content was too large to cause crystallization of the Fe compound as the primary crystallization, thereby the fin material was broken during the cast rolling and cold rolling steps, and the resultant fin was broken during the core assembly step." Example M further teaches away from incorporating an Fe content within Applicant's claimed composition by providing evidence of failure.

Turning to the Examiner's interpretation of *Titanium Metals Corp. V. Banner*, Applicant notes that the decision from *Titanium Metal Corp.* does not recite that a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap, but are close enough that one skilled in the art would have expected them to have the same properties, as alleged by the Examiner. The holding from *Titanium Metal Corp.* stands for the proposition that a newly discovered property for an old alloy that is known to others is not patentable subject matter and is inapplicable to the current case. Applicant's claimed alloy for producing finstock free of breakage is not old or known to others.

The Federal Circuit in *Titanium Metals Corp.* held that three claims to a titanium alloy were unpatentable as being anticipated or obvious over a prior art publication. Different than the present case, in which Kawahara et al. fail to disclose an alloy composition within the composition recited in amended Claims 1, 10 and 14, the facts of *Titanium Metals* included a prior art publication that disclosed and therefore anticipated a composition recited in the base claim and a first dependent claim. More specifically, although the prior art publication did not

Bauman et al.
Serial No. 10/755,632
Filed: 1/12/2004

disclose the composition in the text of the publication, an alloy composition was included in a graph of the publication having 0.25 wt % Mo and .75 wt % Ni therefore being within the range of 0.2-0.4 wt % Mo and 0.6-0.9 wt % Ni recited in the claims.

The court in *Titanium Metals Corp* also held that a second dependent claim to a singular alloy having 0.3 wt % Mo and 0.8 wt % Ni, was obvious in light of two alloys that had been disclosed on the prior art graph, one having 0.25 wt % Mo and 0.75 wt % Ni and the other having 0.31 wt % Mo and 0.94 % Ni. The court stated that despite failing to disclose a composition specifically including 0.3 wt % Mo and 0.8 wt % Ni, "the proportions were so close that one prima facie one skilled in the art would have expected them to have the same properties". *Id.* at 782. Additionally, no evidence was provided by the appellate to refute the case of obviousness.

Applicants' submit that the facts of *Titanium Metals Corp* are differentiated from the present §103 rejection. Contrary to the present rejection, in which the range disclosed in Kawahara et al. does not overlap applicants' claimed Fe range, the two prior art compositions in *Titanium Metals Corp.* provided a range that encompassed the claimed composition. Kawahara et al. disclose that the Fe content is limited to less than 2.0 wt % Fe to avoid breakage in finstock during cold rolling and therefore fails to provide a composition that would motivate one to increase the Fe content in a finstock alloy to be greater than 2.0 wt %. Additionally, one skilled in the art would not be motivated to increase the Fe content in Kawahara et al. to provide Applicants' claimed alloy, since the Kawahara et al. reference specifically teaches that the Kawahara et al. alloy would result in breakage when including an Fe content greater than 2.0 wt %.

Baumann et al.
Serial No. 10/755,632
Filed: 1/12/2004

In sum, applicants submit that Kawahara et al. fail to render Applicant's claimed Al-Fe-Si-Mn alloy unpatentable, since Kawahara et al. fail to teach or suggest an alloy for producing substantially breakage free finstock that includes greater than 2.0 wt % Fe.

Doko et al. fail to fulfill the deficiencies of Kawahara et al., since Doko et al. also fail to teach or suggest a crack free finstock formed of an Al-Fe-Si-Mn alloy containing greater than 2.0 wt % Fe, as recited in amended Claims 1, 10 and 14. Doko et al. disclose an Al-Ni-Fe alloy and is far removed from Applicant's claimed alloy. Doko et al. fail to teach or suggest an alloy including Mn as required by Applicants' alloy recited in Claims 1, 10 and 14. Applicant's alloy is an Al-Fe-Si-Mn alloy system, which is metallurgically different than the Al-Ni-Fe alloy system disclosed in Doko, et al. Therefore, since Doko et al. fail to disclose an Al-Fe-Si-Mn alloy, Doko et al. fail to teach or suggest a crack free finstock formed of an Al-Fe-Si-Mn alloy containing greater than 2.0 wt % Fe, as recited in amended Claims 1, 10 and 14.

The §103 rejection also fails because there is no motivation to combine the disclosures of Kawahara et al. and Doko et al. to provide Applicant's claimed finstock, which includes the features recited in amended Claims 1, 10 and 14. The rejections are thus improper since the prior art does not suggest this drastic modification. The law requires that a prior art reference provide some teaching, suggestion, or motivation to make the modification obvious.

Here, there is no motivation provided in the disclosures of the applied prior art reference, or otherwise of record, which would lead one skilled in the art to modify the alloy of the Kawahara et al. to include greater than 2.0 wt % Fe. Referring to Page 2 of the Office Action, the Examiner merely states that Doko et al. teaches that Fe values above 2.0 wt % can be successfully incorporated into an Al-Ni-Fe alloy and that Kawahara et al. disclose that it is advantageous to include Mn in the range of 0.6-1.8 wt % in an Al-Fe-Si-Mn alloy. The

Baumann et al.
Serial No. 10/755,632
Filed: 1/12/2004

Examiner provides no rational, motivation or reason for one having skill in the art to combine the disclosure of entirely different alloys in a manner that results in Applicant's invention. "The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." *In re Fritch*, 972 F.2d, 1260, 1266, 23 USPQ 1780, 1783-84 (Fed. Cir. 1992).

Applicants further submit that one skilled in the art would not combine the Kawahara et al. and Doko et al. disclosures to meet the limitations of Applicant's invention, since the applied prior art references teach away from one another and applicants' claimed Fe content. It is improper to modify or combine references where the reference teaches away from the proposed modification. *See In re Graselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983).

As discussed above, it is disclosed throughout the Kawahara et al. reference that Al-Fe-Mn-Si compositions including greater than 2.0 wt % Fe break during cold rolling and therefore would not be suitable for finstock applications. *See* Column 29, lines 55-62 of the Kawahara et al. reference. If a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no motivation to make the proposed modification. *In re Gordan*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). Here one of ordinary skill in the art would not modify the disclosure of Kawahara et al. to include the claimed Fe content, since it has been taught throughout the Kawahara et al. reference that such a modification would reduce the alloy's use as a finstock material.

Referring to Page 4 of the Final Rejection, the Examiner states that the breakage disclosed in Example M of the Kawahara et al. reference was not attributed to the increased Fe content and alleges that one skilled in the art would be motivated to increase the Fe content in Kawahara et al. by the teaching of Doko et al. First, as discussed above, in addition to Example

Baumann et al.
Serial No. 10/755,632
Filed: 1/12/2004

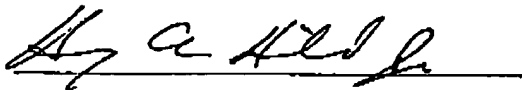
M, the Kawahara et al. disclosure in its entirety teaches that an Fe can not be increased to greater than 2.0 wt % without resulting in breakage. Further, the Examiner fails to provide any reason why one skilled in the art would combine an Al-Ni-Fe metallurgical system, as taught by Doko et al., with an Al-Fe-Si-Mn metallurgical system, as taught by Kawahara et al., to arrive at Applicants' invention recited in Claims 1, 10 and 14. Additionally, Kawahara et al. teach away from combinations with Al-Ni-Fe alloy systems, as taught by Doko et al., since Column 1, lines 60-65, of Kawahara et al. reference discloses that Al-Ni-Fe systems are disadvantageously not suitable for thinning and finstock applications as having insufficient corrosion resistance.

In light of the above, there is no suggestion in the prior art of applicants' structure therefore all the claims of the present application are not obvious from the combined prior art references cited in the present Office Action.

Based on the above amendments and remarks, the §103 rejection citing Kawahara et al. has been obviated; therefore reconsideration and withdrawal of the instant rejections are respectfully requested.

Thus, in view of the foregoing amendments and remarks, it is firmly believed that the present case is in condition for allowance, which action is earnestly solicited.

Respectfully submitted,



Harry A. Hild, Jr., Esq.
Attorney for Applicant
Reg. No. 51, 803
Alcoa Technical Center
Intellectual Property
100 Technical Drive
Alcoa Center, PA 15069
Phone (724) 337-4726